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# **Measurements of 3-D Circulation and Particles Dispersion in Skagit Bay from Lagrangian Drifters**

**And**

## **A New Littoral Ocean Observing System**

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### **LONG TERM GOALS**

The long term scientific objective is to study the hydrodynamics of near-shore environments with special focus on the spatial structures of the flow that dominate erosion, transport and dispersion processes. We also aim to provide a methodology to test the validity of numerical simulations.

### **OBJECTIVES**

The first objective is to develop an efficient sampling scheme to measure the flow in the shallow estuarine and coastal environments and to provide the partners of the project with accurate three-dimensional circulation data and horizontal dispersion estimates of the particles in the surface flow. The second objective is to use our measurements to evaluate numerical models solutions and to measure the flow in the plume of the Tijuana River as well as the circulation in adjacent coastal sea.

### **APPROACH**

8 River Drifters (RD) and 6 River Drifters with will be deployed at the outlet of the Tijuana River during the first significant rain event of the fall/winter season. Other deployments will be made during non-rain events in the coastal sea in form of San Diego to measure the 3-D circulation.

### **WORK COMPLETED IN YF'08**

Eight River Drifters (RD), i.e. code drifter approximately 50 cm long, with 1 and 2 MHz ADCP, and six River Drifters with bottom pinger only were procured with partial funding from the DURIP award “A New Littoral Ocean Observing System” (award #N00014-07-1-0897). Drs Centurioni

and Niiler participated in the kick-off meeting that was hold in La Jolla at the Scripps Institution of Oceanography on September 24 and 25. In that occasion we developed an experimental plan for the rain season of the Fall-Winter '08-'09.

## **RESULTS**

N/A

## **IMPACT/APPLICATIONS**

This research program will investigate ways to operate efficiently multiple arrays of RD and CODE drifters. For the NAVY such methodology is crucial for application of these instruments for both tactical operations and for testing and initialization of hydrodynamic predictive models of littoral conditions.

## **TRANSITIONS**

None

## **RELATED PROJECTS**

## **PUBLICATIONS**

None to date